

Serial No. 09/701587

RATH, Hans-Peter

PF 49091

## A P P E N D I X I:

CLAIM AMENDMENTS:

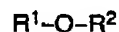
Cancel Claims 1 to 10 and enter new Claims 12 to 24 as indicated in the following listing of the claims:

1. - 11. (canceled)

12. (new) A process for preparing highly reactive polyisobutenes having a terminal vinylidene group content of more than 80 mol% and an average molecular weight of from 500 to 5000 dalton by cationic polymerization of isobutene in the liquid phase in the presence of a complex comprising boron trifluoride at from +40° to -60°C, which comprises polymerizing isobutene in the presence of a complex comprising boron trifluoride and

a) a primary alcohol having 1-20 carbon atoms or a secondary alcohol having 3-20 carbon atoms, or a mixture of these alcohols, and

b) an ether containing no tertiary alkyl groups and having the formula I



wherein  $R^1$  is a secondary alkyl group having 3-10 carbon atoms, and  $R^2$  is methyl, ethyl, or a primary or secondary alkyl group having 3-10 carbon atoms,

wherein the alcohol (a) and the ether (b) have a molar ratio of from 0.01:1 to 1:1, and the molar ratio of the sum of alcohol (a) and ether (b) to boron trifluoride is more than 1 and less than 2.

13. (new) A process as claimed in claim 12, wherein the molar ratio of the alcohol (a) to the ether (b) is from 0.02:1 to 1:1.

14. (new) A process as claimed in claim 12, wherein the molar ratio of the alcohol (a) to the ether (b) is from 0.2:1 to 1:1.

15. (new) A process as claimed in claim 12, wherein the molar ratio of the alcohol (a) to the ether (b) is from 0.4:1 to 1:1.

16. (new) A process as claimed in claim 15, wherein the alcohol (a) is isopropyl alcohol and/or 2-butanol.

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17. (new) A process as claimed in claim 15, wherein the ether (b) is diisopropyl ether, di-sec-butyl ether and/or isopropyl sec-butyl ether.
18. (new) A process as claimed in claim 15, wherein the molar ratio of the sum of alcohol (a) and ether (b) to boron trifluoride is from 1.4:1 to 2:1.
19. (new) A process as claimed in claim 18, wherein the alcohol (a) is isopropyl alcohol and/or 2-butanol.
20. (new) A process as claimed in claim 18, wherein the ether (b) is diisopropyl ether, di-sec-butyl ether and/or isopropyl sec-butyl ether.
21. (new) A process as claimed in claim 12, wherein the alcohol (a) is isopropyl alcohol and/or 2-butanol.
22. (new) A process as claimed in claim 12, wherein the ether (b) is diisopropyl ether, di-sec-butyl ether and/or isopropyl sec-butyl ether.
23. (new) A process as claimed in claim 12, wherein boron trifluoride, the alcohol (a) and the ether (b) are combined in the polymerization reactor to generate the complex in situ in the polymerization mixture.
24. (new) A process as claimed in claim 12, wherein a complex of boron trifluoride and the ether (b) is preformulated and is introduced into the solvent or monomer feed to the reactor or directly into the reactor, either separately or together with the alcohol (a).
25. (new) A process as claimed in claim 12, wherein polyisobutenes having a terminal vinylidene group content of more than 90 mol% are polymerized at an isobutene conversion of up to 95% using a preformed complex of boron trifluoride/isopropanol/diisopropyl ether, having a molar ratio of isopropanol to diisopropyl ether of from 2:1 to 1:5 and a molar ratio of boron trifluoride to diisopropyl ether of from 0.6:1 to 0.9:1.
26. (new) A process as claimed in claim 12, wherein the isobutene source is a C<sub>4</sub> cut comprising isobutene in an amount of at least 6% by weight.
27. (new) A polyisobutene having an average molecular weight of from 500 to 5000 dalton and a terminal vinylidene group content of

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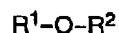
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more than 90%, obtainable by cationic polymerization of isobutene in the liquid phase with the aid of boron trifluoride as catalyst at from 40 to -60°C in the presence of a boron trifluoride complex with

- a) a primary alcohol having 1-20 carbon atoms or a secondary alcohol having 3-20 carbon atoms, or a mixture of these alcohols, and
- b) an ether containing no tertiary alkyl groups and having the formula I



I,

wherein  $R^1$  is a secondary alkyl group having 3-10 carbon atoms, and  $R^2$  is methyl, ethyl, or a primary or secondary alkyl group having 3-10 carbon atoms,

wherein the alcohol (a) and the ether (b) have a molar ratio of from 0.01:1 to 1:1, and the molar ratio of the sum of alcohol (a) and ether (b) to boron trifluoride is more than 1 and less than 2.